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09/739,335	12/19/2000	Mitsuhiro Kawai	2018-367	2597

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EXAMINER

MCCARTHY, CHRISTOPHER S

ART UNIT	PAPER NUMBER
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2113

DATE MAILED: 02/18/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/739,335

Applicant(s)

KAWAI ET AL.

Examiner

Christopher S. McCarthy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-20 is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-17 is/are rejected.
- 7) ☒ Claim(s) 5-7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 8-9, 11-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Trissel et al. U.S. Patent 5,341,320.

As per claim 1, Trissel teaches an electronic control unit (column 5, lines 4-10) comprising memory means for storing data (column 5, lines 5-10); operation means for performing various control operations based on a predetermined control program by using the data stored in the memory means (column 3, lines 48-50), the control operations including a floating-point calculation in which a floating-point data is used (column 2, lines 23-51; column 4, lines 3-5); non-numeric checking means for checking whether the floating-point data includes non-numeric (column 2, lines 52-60); and backup means for performing backup processing in place of the floating-point calculation using the floating-point data including the non-numeric, when the non-numeric is determined by the non-numeric checking (column 2, lines 52-60).

As per claim 2, Trissel teaches the electronic control unit as in claim 1, wherein the backup means includes data initializing means for initializing the data in the memory means when the existence of the non-numeric is determined by the non-numeric checking means (column 4, lines 6-22, 32-40).

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As per claim 3, Trissel teaches the electronic control unit as in claim 2, wherein the data initializing means initializes the data in the memory means by writing into the memory means default values ineffective to control operations (column 4, lines 32-40; column 5, lines 18-19).

As per claim 4, Trissel teaches the electronic control unit as in claim 1, wherein the memory means is a non-volatile memory which maintains storing the data even when the operation means is in inoperative condition (column 5, lines 10-19), and includes a storage area for storing the floating-point data (column 5, lines 10-19); and the non-numeric checking means, in system initialization processing performed at the time of starting the operations of the operation means, performs non-numeric checking for the storage area storing the floating-point data (column 3, lines 45-54).

As per claim 8, Trissel teaches the electronic control unit as in claim 1, wherein the backup means includes interrupt disabling means for disabling all interrupts when the existence of the non-numeric is determined by the non-numeric checking means (column 4, lines 23-27, 32-40; column 3, lines 9-16)

As per claim 9, Trissel teaches the electronic control unit as in claim 1, wherein the backup means initializes only the data in the storage means without resetting the operation means (column 4, lines 23-27, 32-40; column 3, lines 34-37).

As per claim 11, Trissel teaches the electronic control unit as in claim 1, wherein the non-numeric checking means checks whether the floating-point data used in the floating-point calculation is non-numeric for each floating-point calculation (column 2, lines 26-28, 52-55; column 4, line 67 – column 5, line 3).

As per claim 12, Trissel teaches the electronic control unit as in claim 1, wherein the non-numeric checking means checks whether the floating-point data to affect the calculation is non-numeric for each floating-point calculation (column 2, lines 26-28, 52-55; column 4, line 67 – column 5, line 3).

As per claim 13, Trissel teaches the electronic control unit as in claim 1, wherein the non-numeric checking means checks whether any one of all pieces of the floating-point data is non-numeric (column 2, lines 26-28, 52-55; column 4, line 67 – column 5, line 3).

As per claim 14, Trissel teaches the electronic control unit as in claim 1, wherein the operation means sets non-numeric determination flag each time it is determined that the floating-point data is non-numeric; the non-numeric checking means checks the non-numeric determination flag for non-numeric (column 2, lines 61-63); and the backup means performs the backup processing based on a result of checking the non-numeric determination flag (column 4, lines 6-22), wherein, it is inherent in an exception, as used by Trissel, to use a signal (flag) to indicate a particular change of the state of the data.

As per claim 15, Trissel teaches the electronic control unit as in claim 1, wherein the backup means uses an integer data as a backup value instead of the floating-point data (column 4, lines 32-35).

As per claim 16, Trissel teaches the electronic control unit as in claim 1, wherein the backup means performs calculations using integer data instead of the floating-point calculations (column 4, lines 32-35; column 6, lines 22-35).

As per claim 17, Trissel teaches the electronic control unit as in claim 1, wherein the backup means performs calculations using integer data when the non-numeric is found to exist,

and the floating-point data including the non-numeric is initialized to a default value after the calculation using the integer data has been completed or a predetermined time has elapsed (column 4, lines 30-32; column 6, lines 22-35).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bird et al. U.S. Patent 5,631,831 in view of Trissel.

As per claim 1, Bird teaches an electronic control unit comprising memory means for storing data (column 2, lines 1-5), wherein, a memory means is inherent in the computer system of Bird to store the taught software program; operation means for performing various control operations based on a predetermined control program by using the data stored in the memory means, the control operations including a floating-point calculation in which a floating-point data is used (column 2, lines 1-5; column 3, lines 18-24; column 5, lines 16-19). Bird does not teach a non-numeric checking means for checking whether the floating-point data includes non-numeric; and backup means for performing backup processing in place of the floating-point calculation using the floating-point data including the non-numeric, when the non-numeric is determined by the non-numeric checking. Trissel does teach a non-numeric checking means for checking whether the floating-point data includes non-numeric (column 2, lines 52-60); and

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backup means for performing backup processing in place of the floating-point calculation using the floating-point data including the non-numeric, when the non-numeric is determined by the non-numeric checking (column 4, lines 6-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the processing means of Trissel to the unit of Bird. One of ordinary skill in the art would have been motivated to combine the processing means of Trissel to the unit of Bird because Trissel teaches the handling of an invalid floating-point value so as to calculate a valid/desired, final result (column 4, lines 52-55); a need explicitly desired in Bird (column 2, lines 44-50; column 5, lines 15-26).

As per claim 10, Bird teaches the electronic control unit as in claim 1, wherein the operation means is programmed to control an internal combustion engine (column 10, lines 52-53).

Allowable Subject Matter

5. Claims 18-20 are allowed.
6. Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for Allowance

7. The following is an examiner's statement of reasons for allowance: When read as a whole, claim 18 is allowable with respect to the following limitation:

As per claim 18, the primary reason for allowance is the limitation of disabling a use of the floating-point data including the non-numeric in the calculation of the control value, when a check result of the checking step indicates that the floating-point data includes the non-numeric.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent 5,583,989 to Matsui et al.

U.S. Patent 5,272,659 to Starr

U.S. Patent 6,675,292 to Prabhu et al.

U.S. Patent 5,931,943 to Orup

U.S. Patent 6,654,669 to Eisenmann et al.

U.S. Patent 6,199,007 to Zavarehi et al.

U.S. Patent 5,339,266 to Hinds et al.

U.S. Patent Application Publication US2002/0133691 to Elliot et al.

U.S. Patent Application Publication US2003/0135322 to Koto et al.

U.S. Patent Application Publication US2003/0093654 to Harris


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher S. McCarthy whose telephone number is (703)305-7599. The examiner can normally be reached on M-F, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (703)305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

csm
February 12, 2004


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